

### **REMARKS**

The Examiner is thanked for the thorough review and consideration of the present application. The Final Office Action dated August 23, 2004 has been received and its contents carefully reviewed.

By this Response, Applicants have amended the Specification and claims 18-20 and 33-34. No new matter has been added. Claims 18-20, 30 and 33-34 are pending in the application. Reconsideration and withdrawal of the objection and rejections are requested in view of the above amendments and the following remarks.

In the Office Action, claim 18 is objected to because of an informality. Applicants have amended claim 18 to correct the informality. Withdrawal of the objection is requested.

In the Office Action, claims 18-20 are rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,266,118, issued to Lee et al. (hereafter "Lee"). Applicants respectfully traverse the rejection because Lee fails to teach or suggest each of the features recited in the claims of the present application. For example, Lee fails to teach or suggest an array substrate for an IPS-LCD device including, among other features, "an auxiliary common electrode perpendicularly contacting each of the common electrodes..., and wherein the plurality of common electrodes have discontinuous portions" as recited in independent claim 18.

On page 5 of the Office Action, the Examiner has equated element 24c in FIG. 3 of Lee to the auxiliary common electrode recited in the claims of the present application. Further, the Examiner has identified elements 24d and 24a as common electrodes. Applicants respectfully submit that if the Examiner's analysis were accurate, then in order to meet the requirements recited in independent claim 18, element 24c, the "auxiliary common electrode" must perpendicularly contact each of the common electrodes. As can be seen in FIG. 3 of the Lee disclosure, element 24c fails to perpendicularly contact element 24d. Further, Lee does not teach "the plurality of common electrodes have discontinuous portions." Thus, Lee fails to teach or suggest each of the features recited in independent claim 18. Accordingly, claim 18 is allowable over Lee.

Similar to claim 18, independent claim 19 is directed to an array substrate for an IPS-LCD device that includes, among other features, "an auxiliary common electrode perpendicularly contacting each of the common electrodes..., and wherein the plurality of

common electrodes have discontinuous portions.” Applicants respectfully submit Lee fails to teach or suggest at least these features of independent claim 19. As discussed above, element 24c in FIG. 3 of the Lee disclosure fails to perpendicularly contact element 24d. Further, Lee fails to teach “the plurality of common electrodes have discontinuous portions.” Accordingly, Lee fails to teach or suggest “an auxiliary common electrode perpendicularly contacting each of the common electrodes, ... and wherein the plurality of common electrodes have discontinuous portions” as recited in independent claim 19.

Lee also fails to teach or suggest an array substrate for an IPS-LCD device that includes, among other features, “a plurality of auxiliary electrodes connecting the plurality of common and pixel electrodes to form a multi-domain having a checkered pattern” as recited in independent claim 20 of the present application. Because Lee fails to teach or suggest at least this feature of independent claim 20, claim 20 is allowable over Lee. Applicants kindly direct the Examiner’s attention to the amendments, filed herewith, to page 22, lines 1-6 of the specification to clarify the “checkered pattern” recited in claim 20.

Reconsideration and withdrawal of the rejection of claims 18-20 are respectfully requested.

In the Office Action, claims 33 and 34 are rejected under 35 U.S.C. §103(a) as being unpatentable over Lee in view of U.S. Patent No. 5,977,562, issued to Hirakata et al. (hereafter “Hirakata”). At the outset, Applicants note the Examiner has indicated that the plurality of common electrodes and pixel electrodes “being divided into first and second portions of the respective first and second domains is not explicitly defined in the specification... and are considered met by the structure of Lee in view of Hirakata.” Applicants respectfully disagree and kindly direct the Examiner’s attention to, for example, FIGs. 12 and 13 and the specification, page 15, line 27 - page 16, line 20 to provide clarity for the first and second portions of the respective common and pixel electrodes recited in the claims of the present application. Applicants contend no interpretation of Lee and Hirakata would meet the structure recited in the claims of the present application.

Further, Applicants respectfully traverse the § 103(a) rejection because neither Lee nor Hirakata, analyzed alone or in any combination, teaches or suggests the combined features recited in the claims of the present application. For example, Lee and Hirakata fail to teach or suggest an array substrate for an IPS-LCD device that includes, among other features, “a

common line on the second passivation layer and parallel to the gate line, the common line including first and second auxiliary common lines perpendicular to the common line..., and the plurality of common electrodes have discontinuous portions” as recited in independent claim 33. Because Lee and Hirakata fail to teach or suggest at least these features of independent claim 33, claim 33 is allowable over any combination of Lee and Hirakata.

Independent claim 34 is directed to an array substrate for an IPS-LCD device that includes, among other features, “an auxiliary common electrode perpendicularly contacting each of the common electrodes..., and the plurality of common electrodes have discontinuous portions.” Because no combination of Lee and Hirakata teaches or suggests at least these features of claim 34, claim 34 is allowable over Lee and Hirakata.

Reconsideration and withdrawal of the rejection of claims 33 and 34 are respectfully requested.

In the Office Action, claim 30 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Lee in view of U.S. Patent No. 6,154,266, issued to Okamoto et al. (hereafter “Okamoto”). Claim 30 is further rejected under 35 U.S.C. § 103(a) as being unpatentable over Lee in view of U.S. Patent No. 6,097,463, issued to Chen (hereafter “Chen”). Applicants respectfully traverse the rejections because neither Lee, Okamoto nor Chen, analyzed alone or in any combination, teaches or suggests the combined features recited in the claims of the present application. For example, Lee, Okamoto and Chen fail to teach or suggest an array substrate for an LCD-device that includes, among other features, “an alignment layer having first and second rubbing directions, the first and second rubbing directions corresponding to the first and second domains, respectively, wherein the first and second rubbing directions are symmetrical with respect to a line parallel to the gate line” as recited in independent claim 30.

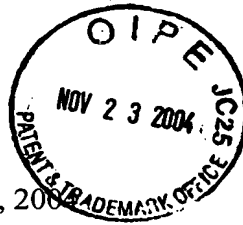
The Office Action concedes on pages 13 and 16 of the Office Action that Lee “does not explicitly disclose an alignment layer having first and second rubbing directions, the first and second rubbing directions corresponding to the first and second domains respectively.” To compensate for the deficient teachings of Lee, the Office Action relies upon Okamoto and Chen, respectively. Based upon the teachings of Okamoto and Chen, the Office Action alleges that it would have been obvious to one having ordinary skill in the art of liquid crystals to modify the LCD of Lee with the alignment layer of Okamoto or Chen to obtain a device having all the combined features recited in claim 30. Applicants disagree.

Applicants note in Okamoto “the step of carrying out the rubbing treatment on the orientation film on the first transparent glass substrate while the rubbing process is divided into first and second steps so that a first a first rubbing direction set in the first rubbing step and a second rubbing direction set in the second rubbing step are opposite to each other by 180 degrees” (see, col. 3, lines 53-59, and col. 6, lines 36-40). As such, Okamoto fails to the structural relationship of the alignment layer recited in claim 30. Specifically, Okamoto fails to teach or suggest “alignment layer having first and second rubbing directions, the first and second rubbing directions corresponding to the first and second domains, respectively, wherein the first and second rubbing directions are symmetrical with respect to a line parallel to the gate line.” Because Okamoto fails to teach or suggest at least these features of claim 30, Okamoto fails to remedy the deficient teachings of Lee such that one of ordinary skill in the art would be motivated to modify the device in Lee by the teachings of Okamoto to obtain an array substrate for an IPS-LCD device having the all the combined features recited in independent claim 30.

With regard to Chen, Applicants note Chen is directed to a TN mode LCD, not an IPS-LCD device, in which adjacent pixels 127 have opposite alignment directions (col. 8, lines 44-47). In Chen, “the unrubbed second homeotropic alignment film is deposited on the rubbed first homeotropic alignment film in a half region of each pixel, and in the pair of alignment films, the unrubbed surface on the second homeotropic alignment film and the rubbed surface on the first homeotropic alignment film are arranged opposite to each other. This represents that in the pair of alignment films, the unrubbed homeotropic alignment film and the rubbed homeotropic alignment film in the respective half regions of each pixel have reversed positional relation.” (see, col. 3, lines 10-20).

Based upon the above, Chen, like Okamoto fails to teach or suggest the structural relationship of the alignment layer recited in claim 30. Specifically, Chen fails to teach or suggest “alignment layer having first and second rubbing directions, the first and second rubbing directions corresponding to the first and second domains, respectively, wherein the first and second rubbing directions are symmetrical with respect to a line parallel to the gate line.” Because Chen fails to teach or suggest at least these features of claim 30, Chen fails to remedy the deficient teachings of Lee such that one of ordinary skill in the art would be motivated to modify the device in Lee by the teachings of Chen to obtain an array substrate for an IPS-LCD device having the all the combined features recited in independent claim 30.

Application No.: 10/620,575  
Amendment dated November 23, 2004  
Reply to final Office Action dated August 23, 2004



Docket No.: 8733.418.10-US

In view of the above, each of the presently pending claims in this application is believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to pass this application to issue. If the Examiner deems that a telephone conversation would further the prosecution of this application, the Examiner is invited to call the undersigned at (202) 496-7500.

If these papers are not considered timely filed by the Patent and Trademark Office, then a petition is hereby made under 37 C.F.R. §1.136, and any additional fees required under 37 C.F.R. §1.136 for any necessary extension of time, or any other fees required to complete the filing of this response, may be charged to Deposit Account No. 50-0911. Please credit any overpayment to deposit Account No. 50-0911. A duplicate copy of this sheet is enclosed.

Dated: November 23, 2004

Respectfully submitted,

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